How US EPA, LDEQ, LDOH Ignore Evidence of Chemical and Particulate Pollution which is Killing and Harming Death Alley Residents

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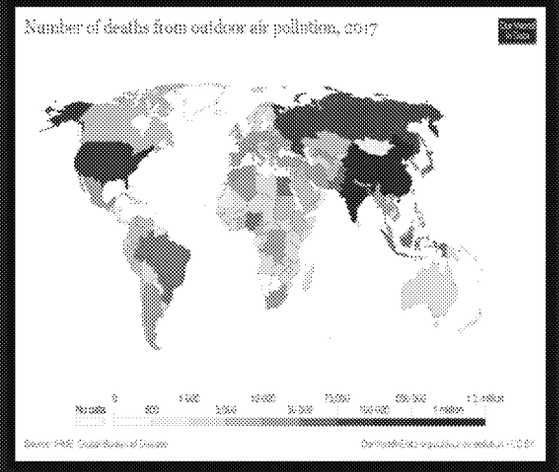
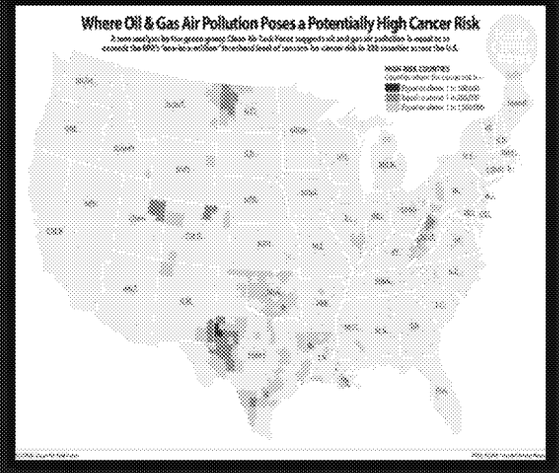
350 New Orleans

Air Pollution: Risk Drivers in Louisiana

- **Fine Particulate Matter (PM2.5)**
  - **Exposure Causes**
    - Premature death, asthma, heart disease, lung cancer, respiratory infections[1]
  - **Burden:** ~8.9 million worldwide deaths/year[2]
    - 2.08 million COVID-19 deaths[3]
- **Air Toxics**
  - **187 Pollutants**
    - Known/likely to cause cancer or other serious effects
  - ***EPA Acceptable Threshold/Action Level***[4]
    - Lifetime cancer risk > 100 in-a-million
  - **2 Primary LA Risk Drivers**





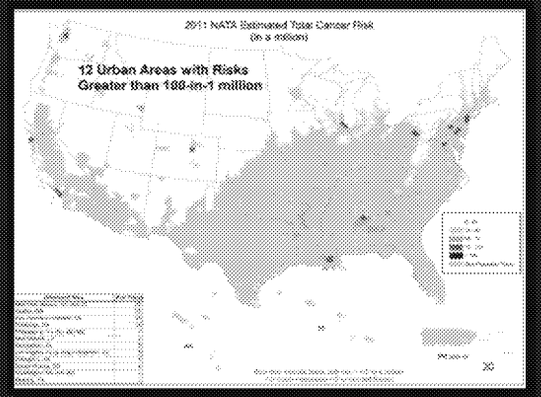
2011 National Air Toxics Assessment (NATA)

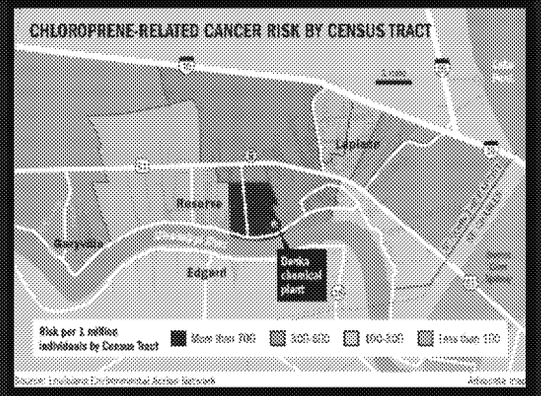
- **Dec ’15 Released to public[5]**

- **Areas above EPA action level (100-in-1 million)**
  - 130 of 78,000 (<1%) Census Tracts

  - **St. John highest (county/parish) cancer risk in US**
    - **Risk: 254 in-a-million**
      - 80% Chloroprene (Dupont/Denka)

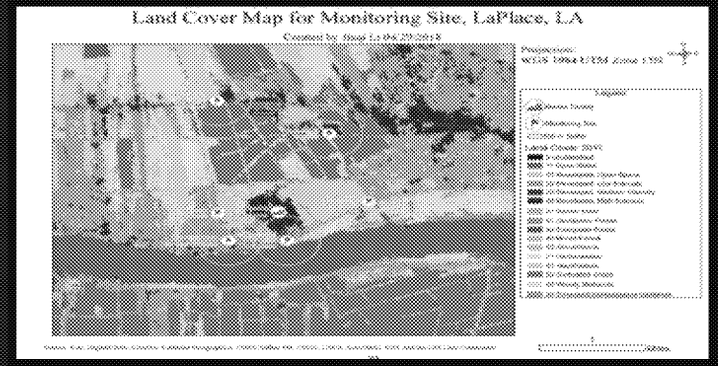
  - **Denka neighborhood highest (census tract) risk**
    - **Risk: 826 per million people**
      - 93% Dupont/Denka Chloroprene (Neoprene feedstock)

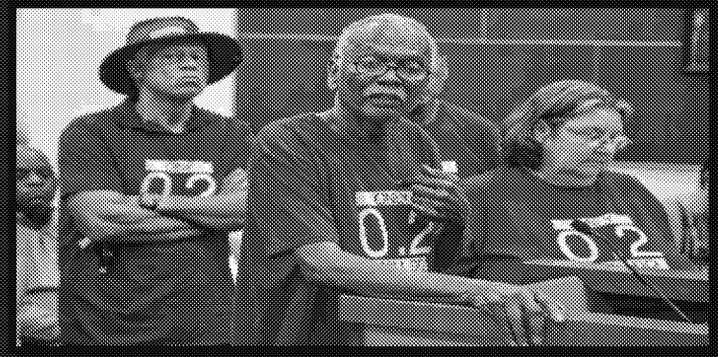




EPA 2011 NATA Response

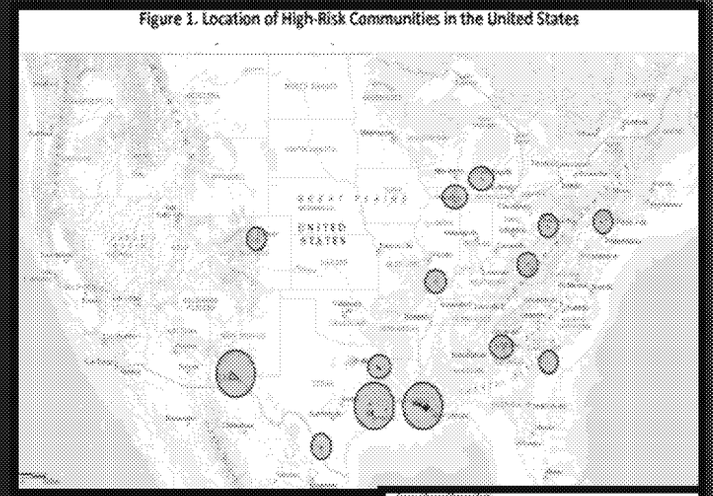
- **Nov '15 – May '16 EPA HQ Convenes Meetings[6]**
  - EPA R6, LDEQ, Denka
- **May '16 EPA Region 6 Actions**
  - Launches 6 neighborhood chloroprene monitoring sites
  - **Conducts Denka compliance inspection**
    - ***Identifies 50 potential CAA violation***
- **July '16 Region 6 Community Outreach**
  - 1st Public Meeting
- **Jan '17 1ST EPA/LDEQ Legal Action**
  - Denka signs Consent Decree
    - Commits to 85% chloroprene reductions

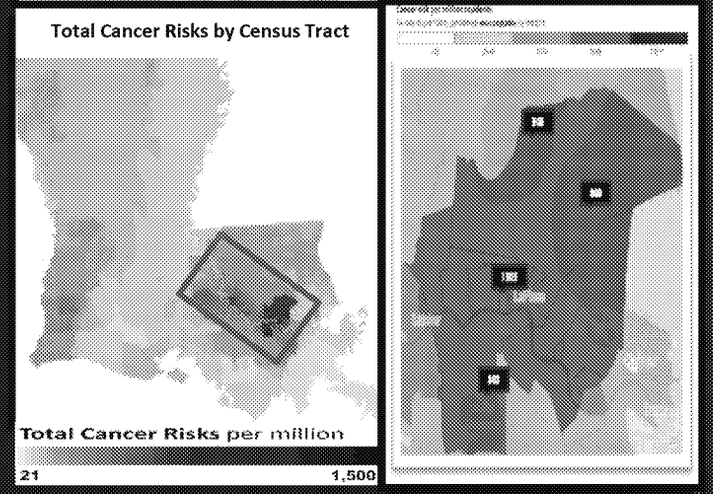




2014 National Air Toxics Assessment

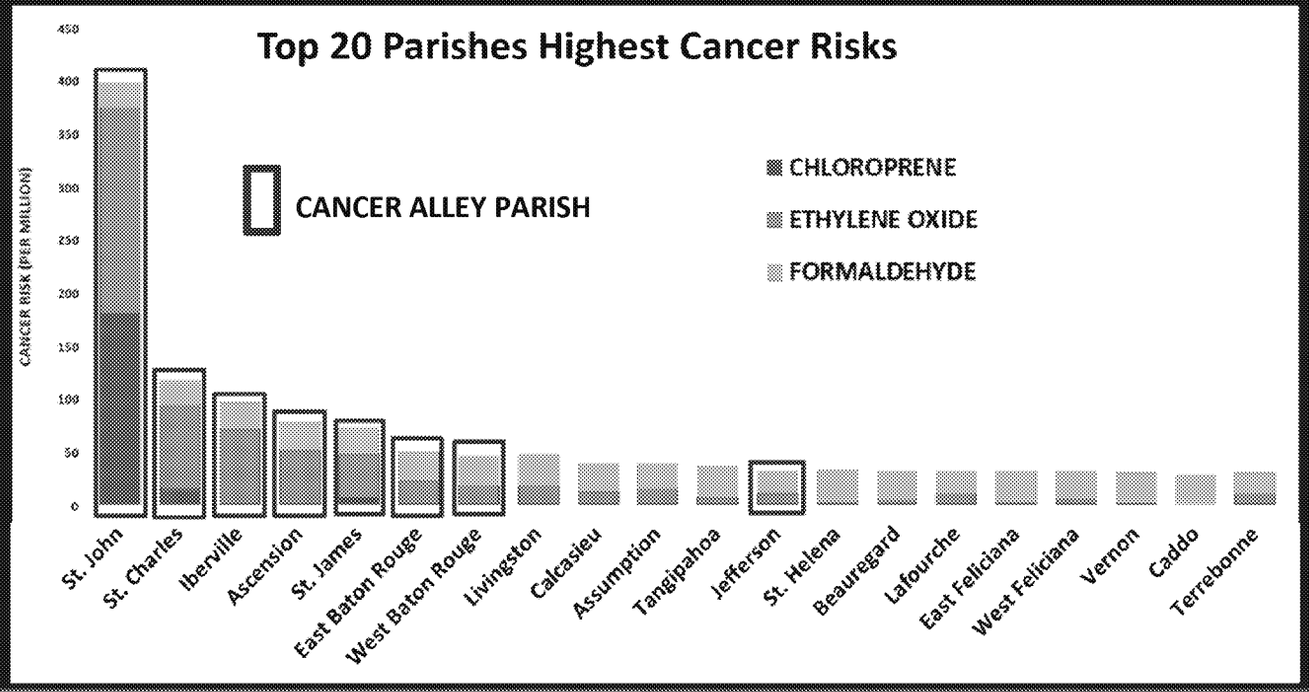
- **Oct '18 Released to public[7]**
- **St. John highest (county/parish) cancer risk in US**
  - **Risk: 413 in-a-million**
    - 47% Ethylene Oxide (Evonik Material Corp.)
    - 44% Chloroprene (Dupont/Denka)
    - 6% Formaldehyde
- **Denka neighborhood highest (census tract) risk**
  - **Risk: 1505.1 in a million**
    - 85% Denka/Dupont Chloroprene
    - 12% Ethylene Oxide, 2% Formaldehyde
- **St. Charles (136), Iberville (112)**
    - Primarily Ethylene Oxide, Formaldehyde

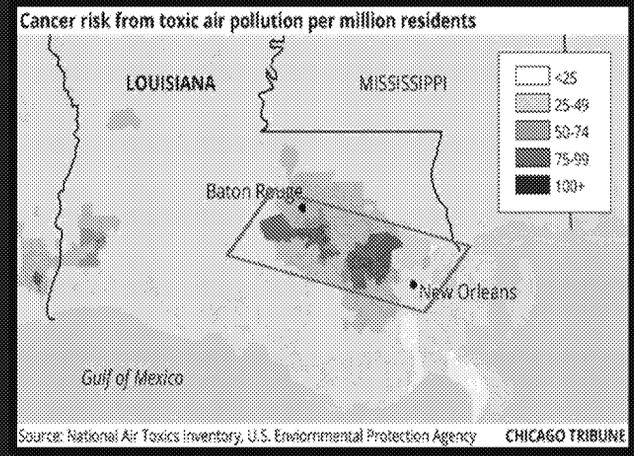


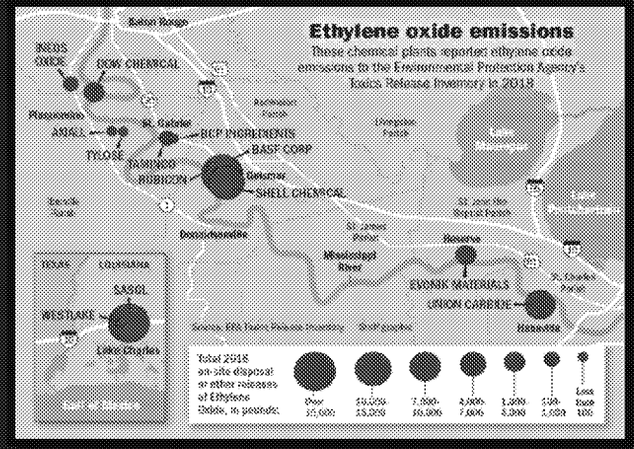


2018 NATA EPA Response

- ❑ NO EPA HQ Convened Meetings
- ❑ NO EPA Region 6 Actions
  - NO Ethylene Oxide (EtO) monitors
  - NO **EtO** Facility compliance inspections
- ❑ NO EPA Region 6 Community Outreach



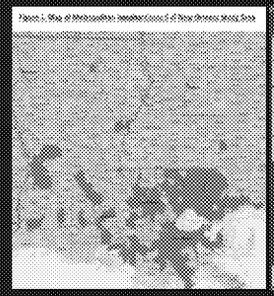




Louisiana Department of Public Health (LDPH) Engagement

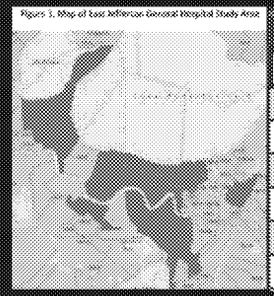
- **2012 IRS-required Community Health Needs Assessment (CHNA)**
  - Every 3 years Hospitals must conduct CHNA, adopt strategy to address "significant" needs
  - May not "exclude medically underserved, low-income, or minority populations"

- **Mar '15 – Aug '15**
  - **Metropolitan Hospital Council of New Orleans[8]**
    - Study Areas: 51 Zip Codes in 15 Parishes
      - **99% of St. John the Baptist Parish Population**



City	Zip Code	Parish
Paradis	70080	St. Charles
Saint Rose	70087	St. Charles
Gramercy	70052	St. James
Lutcher	70071	St. James
Vacherie	70090	St. James
Edgard	70049	St. John the Baptist
Garyville	70051	St. John the Baptist
LA Place	70068	St. John the Baptist
Reserve	70084	St. John the Baptist
Opelousas	70570	St. Landry

- **Mar '15 – Oct '15**
  - **East Jefferson General Hospital[9]**
    - Study Areas: 15 Zip Codes in 6 Parishes
      - **78% of St. John the Baptist Parish Population**

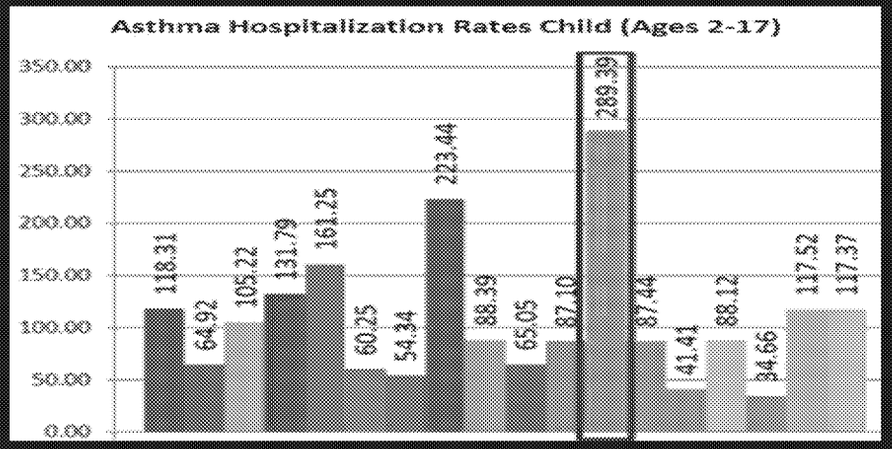


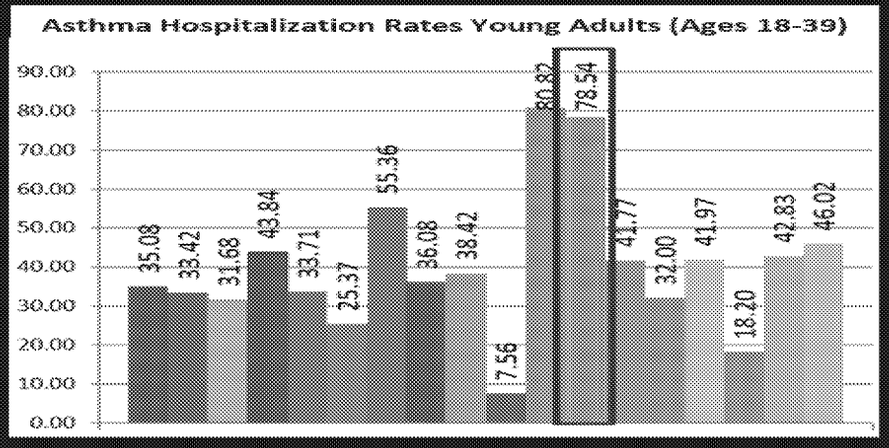
City	Zip Code	Parish/County
LA Place	70068	St. John the Baptist Parish
Norco	70079	St. Charles Parish
Saint Rose	70087	St. Charles Parish
New Orleans	70119	Orleans Parish
New Orleans	70121	Jefferson Parish
New Orleans	70122	Jefferson Parish
New Orleans	70124	Orleans Parish

- ***LDPH collaborated on both CHNAs***

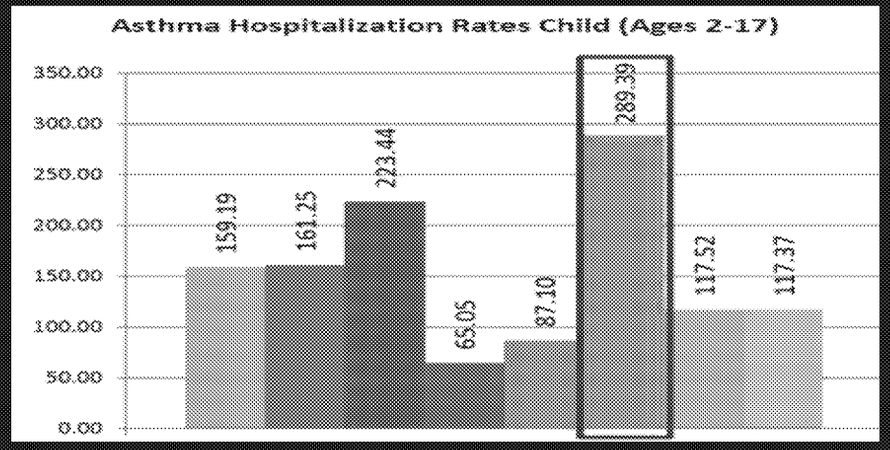
2015 Community Health Needs Assessments*

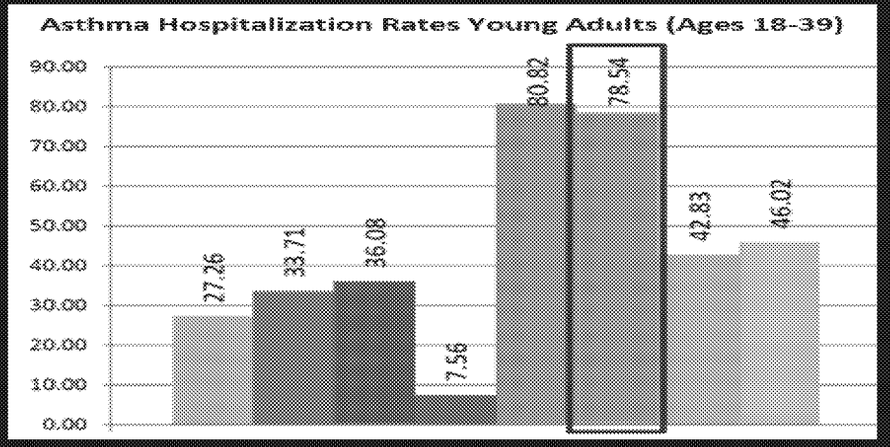
Metropolitan Hosp. Council of New Orleans (MHCNO)
(Oct. 2015)

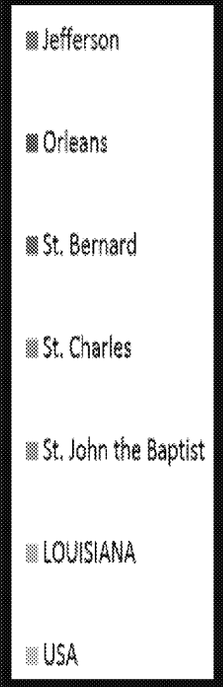




East Jefferson General Hospital (EJGH)
(Nov. 2015)





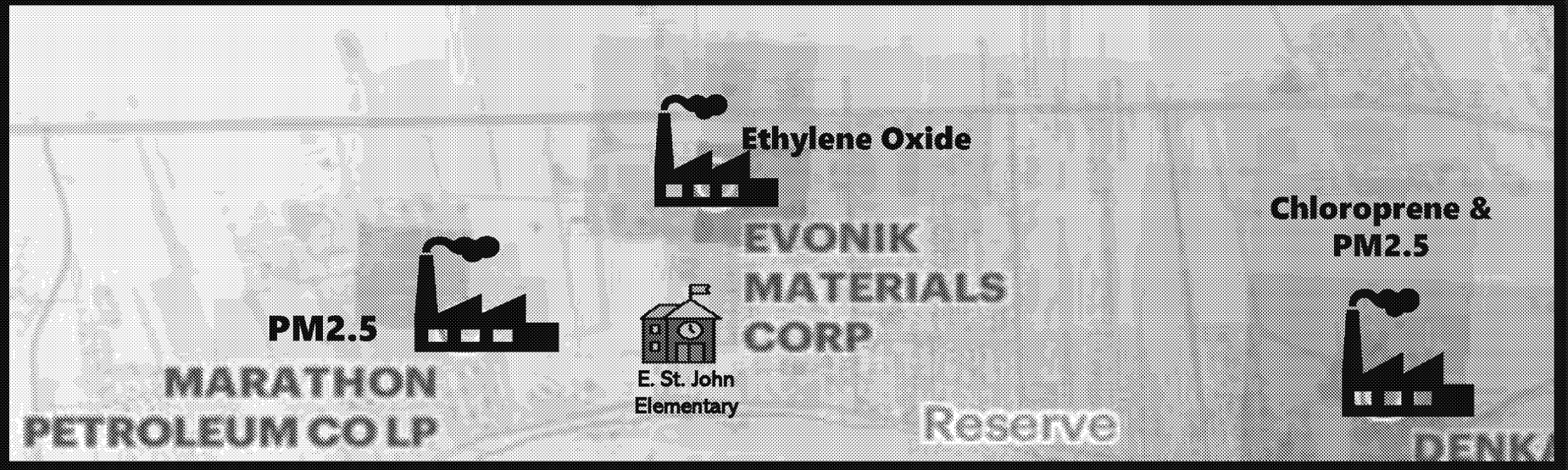


**** St. John and St. Charles Zip Codes dropped from MHCNO & EJGH 2018 CHNAs***

Louisiana Department of Public Health (LDPH) Investigations

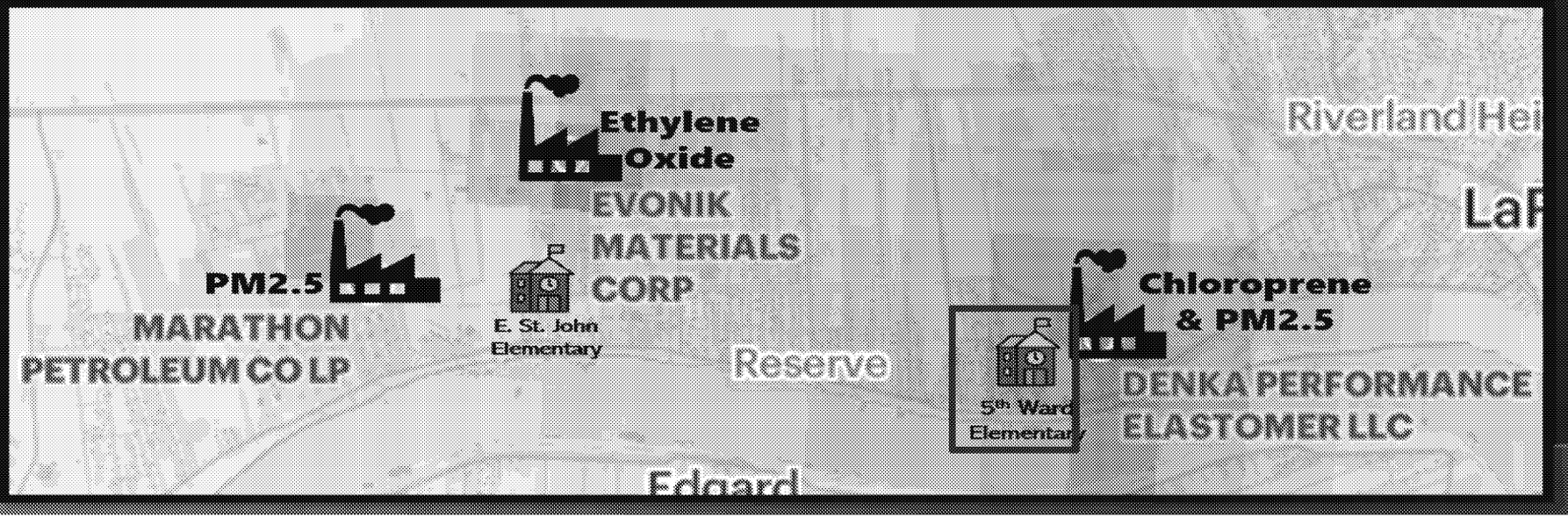
- **Sept ’15 E. St. John Elementary (650 students)[10]**
  - Outbreaks of asthma-like respiratory symptoms
  - Numerous complaints (e.g., vomiting, headaches, burning eyes, weakness)

- **LDPH Findings:**
  - **School in “high-risk area” among Industrial facilities**
    - **Producing “air-borne particulates”**, risks from chemical releases
  - **Be relocated, Needs plan: minimize particulates entry, manage indoor air quality**



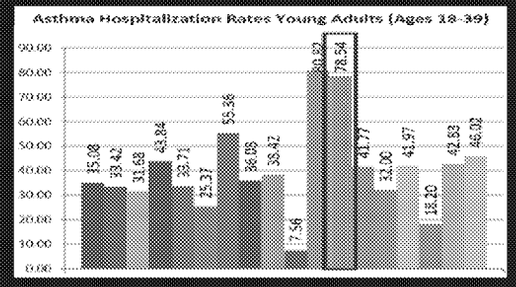
Louisiana Department of Public Health (LDPH) Investigations

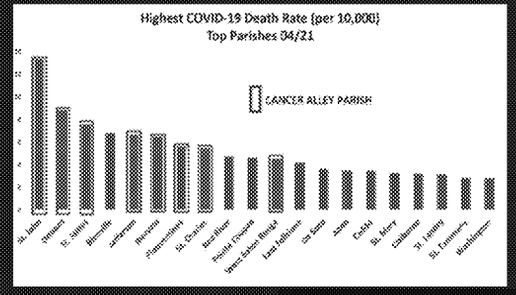
- **June ’18 5th Ward Elementary (500 students), 1500 ft. from Denka[11]**
  - ***Does chloroprene exposure risks after 85% reduction warrant school relocation?***
    - Analysis ignored past exposures to average concentration 25 times higher
    - Did not consider risks from other toxics (ethylene oxide)
- **LDPH Findings:**
  - Students continue to have “elevated lifetime cancer risks”
  - Level of air toxics risks “high across the entire parish”
  - Relocation “would not greatly decrease their risks of developing excess cancers.”

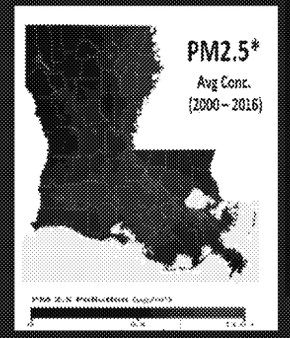


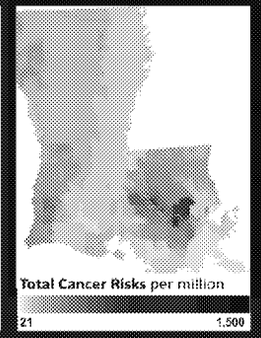
Residents Failed by LDPH Summary

- **First-hand knowledge of air pollution impacts**
  - >1100 students; St. John, St. Charles Asthma Rates
- **Silent: highest COVID-19 death**
  - St. John in US & LA, Cancer Alley in LA
  - 3 Studies found independent links to PM2.5, Air Toxics[12-14]
- ***NO* Epi study air pollution-related health effects despite**
  - LDPH access to local data
    - Premature death, asthma, heart disease, lung cancer, etc
  - Availability of NATA, PM2.5 exposure data
- **LDPH & LDEQ $311,000 EPA R6 "Study"**
  - Designed-to-fail assessment: cancer rates around Denka
  - No exposure data
- ***Time to hold LDPH, LA Officials, Agencies accountable?***









References

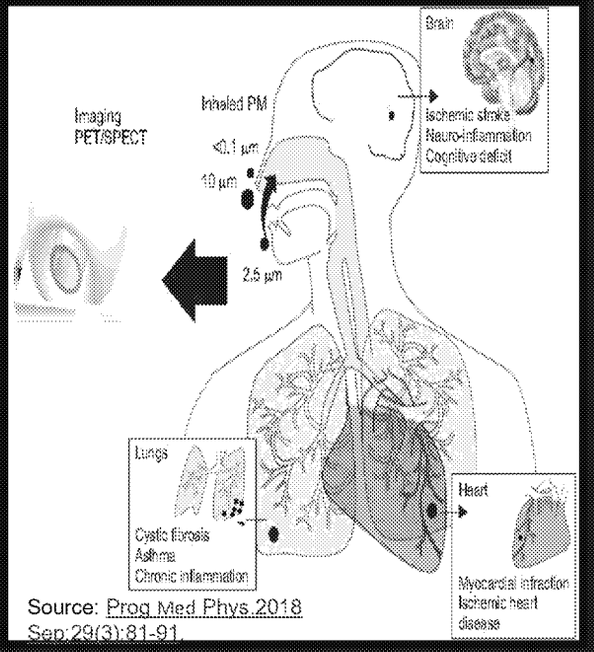
1. US EPA. Policy Assessment for the Review of the National Ambient Air Quality Standards for Particulate Matter. EPA-452/R-20-002. January 2020
2. Burnett R, Chen H, Szyszkowicz M, et al. Global estimates of mortality associated with long-term exposure to outdoor fine particulate matter. Proc Natl Acad Sci U S A. 2018;115(38):9592-9597. doi:10.1073/pnas.1803222115.
3. Johns Hopkins University Center for Systems Science and Engineering
4. US EPA. National Air Toxics Assessment. NATA Overview. Frequently Asked Questions https://www.epa.gov/national-air-toxics-assessment/nata-frequent-questions
5. US EPA. National Air Toxics Assessment. 2011 Results https://www.epa.gov/national-air-toxics-assessment/2011-nata-assessment-results
6. US EPA. EPA in Louisiana. LaPlace, Louisiana - Air Monitoring. https://www.epa.gov/la/laplace-louisiana-air-monitoring-0
7. US EPA. National Air Toxics Assessment. 2014 Results https://www.epa.gov/national-air-toxics-assessment/2014-nata-assessment-results
8. Metropolitan Hospital Council of New Orleans (MHCNO). 2015 Community Health Needs Assessment www.stph.org/upload/docs/AboutUs/MHCNO%202015%20Community%20Health%20Needs%20Assessment.pdf.
9. East Jefferson General Hospital. 2015 Community Health Needs Assessment https://ejgh.org/wp-content/uploads/2019/05/2015-EJGH-Commuinty-Health-Needs-Assessment.pdf
10. Louisiana Department of Health. Evaluation of Potential Health Risks for Elementary School Students based on Early Sampling Results following Emissions Reductions. June 14, 2018. https://ldh.la.gov/assets/oph/Center-EH/DENKA/PreliminaryChloropreneReport.pdf
11. Louisiana Department of Health, Office of Public Health. Evaluation of Potential Health Risks for Elementary School Students based on Early Sampling Results following Emissions Reductions. June 14, 2018. https://ldh.la.gov/assets/media/PreliminaryChloropreneAssessmentFINAL.pdf
12. Wu, X., Nethery, R. C., Sabath, M. B., Braun, D. and Dominici, F., 2020. Air pollution and COVID-19 mortality in the United States: Strengths and limitations of an ecological regression analysis. Science advances, 6(45), p.eabd4049. https://projects.iq.harvard.edu/covid-pm/home
13. Petroni, M. et al. "Hazardous air pollutant exposure as a contributing factor to COVID-19 mortality in the United States." Environmental Research Letters 15 (2020)
14. Kimberly A. Terrell and Wesley James.Environmental Justice.ahead of printhttp://doi.org/10.1089/env.2020.0021

EXTRA SLIDES

PM2.5 Exposures: Health Effects

- EPA: $PM_{2.5}$ *causally related:* [8]
  - **Premature deaths**
    - Cardiovascular
    - Respiratory
    - Lung cancer
  - **Cardiovascular effects**
    - Coronary heart disease
    - Heart attacks
    - Stroke
  - **Respiratory effects**
    - **Asthma onset & exacerbations**
    - **COPD (adults)**
    - **Respiratory infection**

- $PM_{2.5}$ *emerging evidence of causality:* [8]
  - **Neurological Effects**
    - Autism Spectrum Disorder (ASD)
    - Alzheimer's Disease
    - Parkinson Disease
  - **Metabolic Effects**
    - Diabetes
    - Obesity
  - **Reproductive Effects**
    - Congenital Heart Defects
    - Preterm Births
    - Low Birth Weight



Source: Prog Med Phys.2018 Sep;29(3):81-91.

Cancer Alley: Highest Air Toxics & COVID-19 Death Rates